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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte YIHUA CHANG and RICHARD L. WATKINS

Appeal 2009-010112
Application 10/633,764
Technology Center 1700

Decided: June 16, 2010

Before ADRIENE LEPIANE HANLON, LINDA M. GAUDETTE, and KAREN M. HASTINGS, *Administrative Patent Judges*.

HASTINGS, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellants seek our review under 35 U.S.C. § 134 of the Examiner's final decision rejecting claims 1, 4-28, and 30-54. We have jurisdiction over the appeal under 35 U.S.C. § 6(b).

We AFFIRM.

Claim 1 is illustrative of Appellants' invention:

1. A resilient membrane, comprising a microlayer polymeric composite layer having at least 10 microlayers, each said microlayer individually being up to about 2.5 microns thick,

said microlayers alternating between an elastomeric material and a polymeric fluid barrier material comprising a laminar nano-filler having an average platelet thickness of up to about 10 nanometers, an average aspect ratio of at least about 200, and at least one of height and width being independently from about 0.1 micron to about 1.5 microns,

wherein the amount of the laminar nano-filler does not appreciably decrease the resilience of the membrane.

The Examiner maintains, and the Appellants appeal, the rejection of all of the claims (claims 1 and 4-28, and 30-54) under 35 U.S.C. § 103(a) as unpatentable over the combined prior art of Bonk (US 6,082,025 issued July 4, 2000) and Mueller (US 6,403,231 issued June 11, 2002).

Appellants argue all the rejected claims as a group (App. Br. 5-8).[1] Thus, in accordance with 37 C.F.R. § 41.37(c)(1)(vii), we select independent claim 1 as the representative claim on which our discussion will focus.

ISSUE

Appellants' main contention is that there is no suggestion to combine the teachings of Bonk and Mueller because the patents teach away from making such a combination (App. Br. 5, 6; Reply Br. 2-5).

According, the issue is:

Did the Examiner err in determining that the claimed resilient membrane would have been obvious over Bonk and Mueller because the

[1] Although the Examiner formats the rejection as two separate rejections, rejecting claims 1 and 4-27 separately from the group of claims 28 and 30-54, the rejections are virtually identical (Ans. 3-6). Appellants do not offer any additional arguments for the latter rejected group (App. Br. 8).

prior art teaches away from using a laminar nano-filler in a resilient membrane as required by claim 1?

We answer this question in the negative.

PRINCIPLES OF LAW

A reference "teaches away" when it suggests that the developments flowing from its disclosures are unlikely to produce the objective of the Appellants' invention; the degree of teaching away will of course depend on the particular facts. *See In re Gurley*, 27 F.3d 551, 553 (Fed. Cir. 1994). *See also Para-Ordnance Mfg., Inc. v. SGS Importers Int'l, Inc.* 73 F.3d 1085, 1090 (Fed. Cir. 1995) (to teach away, a reference must state that it "should not" or "cannot" be used in combination with other features in the prior art.)

ANALYSIS

with Factual Findings

We adopt the factual findings and reasoning of the Examiner (Ans. 3-7; Final Office Action pp. 2-4), unless expressly overturned or set aside herein, and add the following primarily for emphasis.

In their Reply Brief, Appellants concede that Mueller suggests the previously disputed claimed particle size limitation of the laminar nano-filler used therein (Reply Br. 2). Accordingly, Appellants' sole remaining contention is that there is no suggestion to combine the teachings of Bonk and Mueller because the patents teach away from making such a combination (App. Br. 5, 6; Reply Br. 2-5). Specifically, Appellants contend that one of ordinary skill "would expect the Mueller [clay laminar nano-filler] particles would make a film stiffer" (Reply Br. 2), which is undesirable for Bonk's membrane (App. Br. 6; Reply Br. *generally*).

Appellants also state that the flexible films of Mueller are not necessarily "resilient" as required by claim 1 (*id.*), however, Appellants agree with the Examiner that Bonk describes a resilient membrane (*e.g.,* Reply Br. 4).

These contentions are unavailing as both references deal with flexible films wherein improved gas barrier properties, such as a low gas transmission rate, are desirable (*see, e.g.,* Bonk abstract; col. 20; ll. 25-35; Mueller abstract; col. 4, ll. 42-46; col. 6, ll. 41-56). Furthermore, Mueller states that the

> incorporation of nanosize particles of a modified clay into one or more of the polymeric layers of [a] film structure can improve the barrier properties *without sacrificing*, and many times improving, the mechanical, optical, and other properties.

(Mueller, col. 6, ll. 49-54; emphasis provided).

Mueller's inventive films with a modified clay particle filler results in "improved barrier *and/or* mechanical properties" (*e.g.,* col. 6, ll. 55-60, emphasis added). The artisan would not have been led to believe that the use of such a filler would have detrimentally increased stiffness in a resilient membrane from these teachings. Indeed, Mueller discloses that "[t]he amount of modified clay material combined with the polymer should be in an amount that is sufficient to provide the *desired* barrier *and/or* mechanical properties" (Mueller, col. 4, ll. 1-3 (emphasis added)).

There is nothing in Bonk that suggests that the use of such nano-sized clay filler particles in a gas barrier membrane would have been undesirable. Certainly, skill in the art is presumed, and a person of ordinary skill in the art would have reasonably expected that the known technique of using nano-size clay filler particles for improved gas barrier properties would have resulted in a satisfactory gas impermeable membrane. Mueller does not

suggest that their clay particle filler should not or can not be used in gas barrier membranes, such as in Bonk; to the contrary, they teach that the nano-sized clay filler improves gas barrier properties without sacrificing mechanical properties. *In re Gurley*, 27 F.3d at 553; *see also Para-Ordnance Mfg., Inc.* 73 F.3d at 1090.

An improvement in the art would have been obvious if "it is likely the product not of innovation but of ordinary skill and common sense." *KSR Int'l. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007). Accordingly, the Examiner's position that one of ordinary skill in the art would have appreciated that the nano-sized clay filler particles of Mueller would have been useful in applications for membrane articles where a low gas transmission rate is desirable, as in Bonk, is reasonable. The use of the nano-sized clay particle filler, as taught in Mueller's flexible films, in the flexible resilient barrier film structure of Bonk would have been nothing more than using a known filler in accordance with its known function for the predictable result of creating improved gas barrier properties of a flexible, resilient film. *See KSR*, 550 U.S. at 416 ("The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.").

Appellants have offered no evidence of unexpected results.

Accordingly, the evidence as a whole supports the Examiner's conclusion of obviousness, and on the record before us, we sustain the § 103 rejection of all the claims as maintained by the Examiner.[2]

[2] Only those arguments actually made by Appellants have been considered in this decision. Arguments which could have been made but Appellants

DECISION

We affirm the Examiner's § 103 rejection.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(v).

AFFIRMED

PL Initial:
sld

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chose not to make have not been considered and are deemed to be waived. *See* 37 C.F.R. § 41.37(c)(1)(vii) (2008).